

## **REMARKS**

### **I. Introduction**

Claim 7 is pending in the present application after the cancellation, without prejudice, of claims 9 to 12. In view of the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

Applicants respectfully request acknowledgement, in the next communication from the Office, that the previously filed Information Disclosure Statements, PTO-1449 papers and cited references have been considered.

### **II. Rejection of Claims 7 to 12 Under 35 U.S.C. § 103(a)**

Claims 7 to 12 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of U.S. Patent No. 4,245,789 ("Gray") and U.S. Patent No. 5,732,888 ("Maier et al."). As an initial matter, claim 8 was canceled without prejudice in the previous Amendment filed October 13, 2006. Claims 9 to 12 have been cancelled herein without prejudice. Accordingly, the rejection of claims 8 to 12 is moot. It is respectfully submitted that the combination of Gray and Maier et al. does not render unpatentable claim 7 for at least the following reasons.

Claim 7 as amended herein without prejudice recites a coating that includes a plurality of chromium layers and has a surface structure that has raised areas and recessed areas. The raised areas have a dome-shaped design and the height difference between the raised areas and recessed areas is initially between 5  $\mu\text{m}$  and 10  $\mu\text{m}$  and is reduced to between 4  $\mu\text{m}$  and 5  $\mu\text{m}$  during use of the fuel injector. Support for the amendments can be found, *e.g.*, on page 4, lines 23 to 27 and page 5, lines 4 to 7 of the Substitute Specification. It is respectfully submitted that neither Gray nor Maier et al. disclose, or even suggest, at least the aforementioned features of claim 7.

As previously set forth, Gray does not disclose, or even suggest, at least the feature of a coating having a surface structure having raised areas and recessed areas, wherein the raised areas have a dome-shaped design. Gray describes providing opposed working air gap surfaces of a pole piece and an armature with an average surface roughness rating value on the order of 16 to 32 microinches. As shown in Figure 4, the roughened surface has peaks and valleys extending from opposite sides of the center line. See *a/so* column 8, lines 63 to 68.

Thus, Gray does not include at least the feature of a coating having a surface structure having raised areas and recessed areas, wherein the raised areas have a dome-shaped design. This is further indicated by the fact that the roughness of the surfaces described in Gray are obtained by grinding the surface. Column 9, lines 16 to 35. Grinding could not provide a surface having raised areas having a dome-shaped design as recited in amended claim 7.

Gray also fails to disclose at least the features of a coating including a plurality of chromium layers and a height difference between the raised areas and recessed areas being initially between 5  $\mu\text{m}$  and 10  $\mu\text{m}$  and being reduced to between 4  $\mu\text{m}$  and 5  $\mu\text{m}$  during use of the fuel injector.

The Office Action asserts that "Maier et al. teaches that is old and well known in the art to have a coating used with an armature to provide a wear resistance medium for the armature." Office Action, page 3. Maier et al. is not relied upon for disclosing or suggesting the aforementioned features of claim 7 not disclosed or suggested by Gray. Indeed, it is respectfully submitted that Maier et al. do not disclose, or even suggest, the aforementioned features of claim 7 not disclosed or suggested by Gray. Instead, Maier et al. discloses an electromagnetically operable valve that includes at least one component part that possesses, prior to the application of a wear resistant coating, a wedged surface. Maier et al. only mentions in general that the application of metallic coating, *e.g.*, of chromium or nickel coating, to a core end of a core and to a component part by galvanization methods. Furthermore, Maier provides that the coating thickness generally measures between 10  $\mu\text{m}$  and 25  $\mu\text{m}$ . Nowhere do Maier et al. disclose a coating that includes a plurality of chromium layers and has a surface structure that has raised areas and recessed areas or that raised areas have a dome-shaped design or that a height difference between raised areas and recessed areas is initially between 5  $\mu\text{m}$  and 10  $\mu\text{m}$  and is reduced to between 4  $\mu\text{m}$  and 5  $\mu\text{m}$  during use of a fuel injector. Accordingly, it is respectfully submitted that the combination of Gray and Maier et al. does not render unpatentable claim 7.

The present rejection is also deficient in that the references do not provide a suggestion or motivation for making the proposed combination or modification. The Office Action provides no indication whatsoever of a suggestion or motivation by Gray or Maier et al. to make the proposed combination or modification. Merely because certain reference *can* be combined or modified does not render the

resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). If the desirability of the combination cannot be found in the prior art, then a rationale must be provided that is reasoned from knowledge generally available to one of ordinary skill in the art, based on established scientific principles, or based on legal precedent established by prior case law. See § M.P.E.P. 2144. At least a convincing line of reasoning must be presented to support the rejection. *Ex Parte Clapp*, 227 U.S.P.Q. 972 (Bd. Pat. App. & Inter. 1985). It is respectfully submitted that the Office Action has not provided a convincing line of reasoning for making the proposed modification. The Office Action states “[i]t would have been obvious ... to modify the armature stop face of Gray to be made with a chromium coating as taught by Maier et al. to provide for a high resistant coating with a multiple layer thickness of raised and recessed dome shaped areas and a height difference between 5  $\mu$ m and 10  $\mu$ m so as to ensure that the removal of the raised areas as a result of operational wear is less than the height difference between the raised and recessed areas to prevent an increase in the percentage of true contact area between the stop face surfaces ....” Office Action, page 3. This is not a convincing line of reasoning but instead a conclusory statement that it would have been obvious to modify the reference to achieve an end result, *i.e.*, to provide for a high resistant coating with a multiple layer thickness of raised and recessed dome shaped areas and a height difference between 5  $\mu$ m and 10  $\mu$ m so as to ensure that the removal of the raised areas as a result of operational wear is less than the height difference between the raised and recessed areas to prevent an increase in the percentage of true contact area between the stop face surfaces. Accordingly, the present rejection is apparently based on nothing more than improper hindsight, which cannot support an obviousness rejection. Since there is no motivation or suggestion to make the proposed combination, it is respectfully submitted that the combination of Gray and Maier et al. does not render unpatentable claim 7 for at least this additional reason.

In view of all of the foregoing, withdrawal of this rejection is respectfully requested.

III. Conclusion

In light of the foregoing, Applicants respectfully submit that all pending claims are in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

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